

56 page MAP White Paper. Found one paragraph:

Muon Collider and Neutrino Factory technology development is highly synergistic. In particular, there are overlapping needs for muon production, capture, cooling and acceleration. Joint development in these areas can enable a physics program spanning both the Energy and Intensity Frontiers. Furthermore, cooled muon beams also have potential applications in low- and medium-energy muon physics, as well as for homeland security and medicine.

Absolutely!

We need many small steps with physics opportunities in each step. This is the only way to bring in students/postdocs and challenge them.

Technologies:

- high flux of low energy muons can be used to catalyze atomic/molecular bonding, nuclear reactions, and develop a precision footprint using muon capture for different radiological materials.

- high precision 3D ionization imaging of dense objects with muons

Energy Frontier:

- Add physics programs to nuSTORM using source of high energy ν_e
- Consider intermediate collider programs (μp collider program “AREH”, or μ^+e^- for VBF Higgs production with polarized 1.5 TeV μ^+ beam and ~ 80 GeV e^- beam)

Muon Collider Higgs Physics

- Muon collider program has great potential:
 - Exquisitely high beam resolution for the direct scan of the 4 MeV Higgs width and high precision on the measurement of the top mass and the mass of new particles far into the multi-TeV mass range, beyond the reach of any other accelerator technology
 - The potential for beam polarization CP tests of the Higgs sector
 - Potential for ZH/vvH production, ttH, and vvHH (self-coupling)
- Largest weakness:
 - Not enough physicists engaged in muon colliders – need a muon program with a steady stream of physics output
 - Unique capabilities, instrumentation innovation, background-suppressing particle-flow algorithms, and more hands-on muon beam experience could really energize this effort